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UNITED STATES DEPARTMENT OF AGRICULTURE

BULLETIN No. 935

Contribution from the Bureau of Market
GEORGE LIVINGSTON, Chief

Washington, D. C. ▼ March 14, 1921

THE DISTRIBUTION OF NORTHWESTERN BOXED APPLES

By

C. W. KITCHEN, Specialist in Market News, Fruits, and Vegetables; E. M. SEIFERT, Jr., Assistant in Market Surveys; and MARY B. HALL, Clerk

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INTRODUCTION.

The apple industry in the Pacific Northwest has developed rapidly since 1900. In the fall of 1915, at the request of a number of representative growers and shippers of apples in the States of Washington, Oregon, Idaho, and Montana, the Bureau of Markets began a systematic collection of statistical data relevant to distribution, prices, and other general factors influencing the marketing of apples from this territory. Arrangements were made with the railroads serving these States by which copies of waybills covering car-lot shipments of apples in 1915–16 were furnished the Bu-

reau. Shippers furnished copies of invoices and sales records. Beginning with the 1916 season, telegraphic reports of shipments were received daily from division superintendents of common carriers serving the Pacific Northwest, and shippers reported their f. o. b. and contract sales each day such sales were made. From data thus obtained a summary of the distribution of several of the principal varieties and their seasonal price trends has been compiled.[1]

Each season since the fall of 1916 the Bureau has issued daily market reports from Spokane showing the number of cars shipped from the Pacific Northwest and in the United States as a whole. In addition, primary destinations of Northwest shipments, the jobbing prices prevailing in the principal consuming and distributing markets of the United States, and the f. o. b. prices at several of the principal points of shipment in competing districts were shown. These reports were mailed daily to growers and shippers. The number of individuals served has varied from season to season, with a maximum of approximately 4,000.

Data gathered by these means and presented in this bulletin do not cover every car that was shipped, but are believed to be representative and sufficiently comprehensive and complete to justify their use as a basis for a statistical analysis of the marketing of the greater part of the boxed apple crop of the United States.

PRODUCTION.

The districts of the Pacific Northwest now prominent in apple production are of recent origin compared with the established districts in the eastern States. They cover well-defined areas in each State, where soil and climatic conditions are particularly favorable to apple production. The tree census of the Wenatchee district taken by the Wenatchee North Central Washington Growers' League in 1915 showed less than 10 per cent of the apple trees to be 10 or more years of age. This district was then, and still is, the largest in point of apple production in the Pacific Northwest, and may in point of development be considered as representative of the entire section.

The principal districts,[2] in the order of their importance in production, are the Wenatchee Valley, Yakima Valley, Hood River district, Spokane district, Southern Idaho district, Walla Walla-

[1] See Exhibit No. 1, p. 11.

[2] A complete list of billing stations for the entire Pacific Northwest segregated into districts and showing the 1919–20 shipments from each station will be found in Exhibit No. 2, p. 11.

Milton-Freewater district, Rogue River Valley, Western Oregon, and the Bitter Root Valley of Montana.

The Wenatchee Valley in 1919–20 shipped approximately 33 per cent of the total movement from the Pacific Northwest, Yakima Valley about 30 per cent, and Hood River district and Southern Idaho about 10 per cent each. Spokane contributed about 8 per cent, and the Walla Walla-Milton-Freewater district about half of the number of cars shipped from the Spokane Valley. Montana, with an increased production over preceding years, is credited with a little less than 2 per cent of the total Northwest shipments.

The first commercial shipments of apples from the Northwest were made in 1900. With the extension of irrigation work the development of the industry was steady and rapid and land values advanced with increased production.

The Bureau of Crop Estimates placed the 1914 total production in the Pacific Northwest at about one-sixteenth of the total production of the United States. By 1916 the proportion had increased to almost one-sixth, and in 1919 more than one-third of the apple crop of the country was credited to the four States of Washington, Oregon, Idaho, and Montana.

Commercial production, estimated by Bureau of Crop Estimates.

	United States.	32 barrel States.	9 box [1] States.	4 Pacific Northwest box [1] States.
	Barrels.	*Barrels.*	*Barrels.*	*Barrels.*
1916	25,059,000	19,102,000	5,957,000	4,301,000
1917	22,467,000	13,914,000	8,563,000	6,313,000
1918	24,743,000	17,640,000	7,103,000	5,154,000
1919	26,174,000	14,353,000	11,821,000	9,121,000
1920	34,281,000	26,593,000	7,688,000	6,568,000

[1] Three boxes per barrel.

Carlot shipments [3] from the Pacific Northwest increased steadily, and during the 1916–17 season were somewhat less than one-third of the total for the country. Reports of shipments during the 1919–20 season show that more than 40 per cent moved from the Pacific Northwest.

Reports of sales indicate that more than 100 varieties are produced in and sold from this section, but each year sees an increasingly large percentage of a few of the more popular types, as shown in the following table:

[3] See Exhibit No. 3, p. 16.

Percentage of leading varieties of apples produced.

Variety.	1915–16		1918–19		1919–20	
	Cars.	Per cent.	Cars.	Per cent.	Cars.	Per cent.
Winesap	2,614	22.8	6,129	31.8	8,319	25.0
Jonathan	2,430	21.2	2,564	13.3	5,989	18.0
Rome Beauty	1,238	10.8	1,041	5.4	4,325	13.0
Spitzenberg	802	7.0	1,022	5.3	2,994	9.0
Yellow Newtown	711	6.2	946	4.9	2,328	7.0
Delicious	333	2.9	713	3.7	1,663	5.0
Miscellaneous	3,337	29.1	6,861	[1] 35.6	7,652	23.0
Total	11,465	100.0	19,276	100.0	33,270	100.0

[1] The percentage of miscellaneous varieties shown for the 1918–19 season includes cars of mixed varieties that could not be segregated. A number of these cars contained some apples of the Winesap, Jonathan, Rome Beauty, Spitzenberg, Yellow Newtown, and Delicious varieties.

Conditions peculiar to the different districts have made necessary specialization in varieties grown. In southern Idaho the bulk of the crop is composed of Winesap, Rome Beauty, and Jonathan apples. In Hood River Valley Yellow Newtowns and Spitzenbergs predominate, with a very small percentage of other varieties. The Yakima Valley grows a large percentage of Winesaps and Jonathans. The Wenatchee Valley also produces many of the Winesap variety, and the Jonathan and Delicious together about equal the Winesaps. The Rome Beauty predominates in the Walla Walla and Spokane Valleys. Growers in the Bitter Root Valley specialize largely on the McIntosh.

The following varieties were not grown in sufficiently large volume to show the relative percentages: Arkansas Black, Ben Davis, Gravenstein, Grimes, King David, McIntosh, Ortley, Stayman, Winesap, Wagener, White Pearmain, Banana.

PREPARATION FOR MARKET.

Orchards throughout the Pacific Northwest have been kept in a state of high cultivation and every known means is employed to grow and develop trees that will produce the largest possible crop of highly colored fruit. The trees are pruned to a shape that facilitates spraying and picking. Rigid grading rules, strictly enforced, have resulted in an excellent pack.[4] Frequent changes have been made in these rules, but the general tendency has been toward improvement.

As production increases in volume harvesting, packing, and shipping problems become increasingly difficult. A very large proportion of the labor employed during this period is migratory and temporary. This is especially true of sorters, packers, and those employed in loading the cars. They move from the south to the north as the various fruit crops in the West are harvested.

[4] Grading rules adopted for Washington will be found in Exhibit No. 4, p. 17.

Standardization in packing-house methods has not been extensively applied. Modern appliances for handling the fruit, such as sizing machines and power and gravity conveyors, are now generally used. Apples are packed at the orchards and in central or community packing houses operated by shipping organizations. The proportion packed in the houses of the latter type has increased from about one-fourth of the crop in 1916 to approximately one-half in 1919.

Most of the fruit is packed into the three standard grades.[5] In the Extra Fancy and Fancy grades the fruit is wrapped with paper. Most shippers wrap the "G" grade, but "Jumble" and "face and fill" packs are also commonly used.

TRANSPORTATION AND STORAGE FACILITIES.

The long haul[6] from the producing areas in the Pacific Northwest to consuming centers makes the problem of transportation and storage most important. Transportation facilities have not kept pace with the rapidly increasing production, and many heavy losses to growers and shippers are attributed to the shortage of refrigerator equipment and insufficient storage space. This was especially true in the 1919–20 season. In 1915 the combined common and cold storages in producing districts could accommodate more than 60 per cent of the commercial production, but in the 1919–20 season there was capacity for approximately only 40 per cent of the fruit.

The unusually heavy production in 1919 with the combination of a short picking season and insufficient storage facilities caused an unprecedented congestion. Every available space was used for storing apples, and with the common storages and some cold storages packed with more than their designed capacity, proper ventilation and efficient handling were practically impossible. These congested conditions caused a very rapid maturing of much of the fruit, and heavy losses were sustained in consequent deterioration. Insufficient storage space and a shortage of cars in the fall cause much rehandling and add considerably to the cost of packing and shipping.

The railways, refrigerator-car lines, and the Bureau of Markets are making efforts to reduce waste in transit. The fruit is shipped mostly in refrigerator cars, and in the early fall and in the spring many shipments are made under ice. During periods of extreme low temperatures heaters are installed in the cars, but generally speaking most shipments are billed under ventilation. For short hauls and to Pacific coast points box cars are often used during the periods before and after extreme cold weather. In cases of great emergency during a car shortage shipments to eastern points are made in box cars, but in such cases they are usually accompanied by messengers

[5] See Exhibit No. 4, p. 17.

[6] See Exhibit No. 1, p. 11.

and shipped under option 1. Shippers have the privilege of two options, known as option 1 and option 2. Shipped under option 1, a car moves at the shipper's risk; under option 2, at the carrier's risk. Prior to the fall of 1918 an average carload consisted of 630 boxes, but during the last two years 756 boxes to the car were considered a minimum load.

Storage facilities at points en route and at final destinations during recent seasons have been taxed to their limits. Eastern cold storages,[7] which include plants in the producing sections of New York State, where many boxed apples are stored, show by their reports on December 1 that they accommodated nearly twice as many cars in 1919 as in the previous year. At points in the Southern States[7] the increase over 1918 was about one-third. In the Middle Western States,[7] which include large centers of consumption and distribution, such as Chicago and Cincinnati, cold-storage holdings in 1919 doubled the 1918 holdings, and in the Southwestern States[7] holdings of boxed apples in cold storage were also greater than ever before.

RATE OF MOVEMENT.

The Pacific Northwest is now one of the most influential factors in the apple production of the country.[8] The final reports of apple shipments for the United States during the 1919–20 season show the heaviest movement in the history of the apple industry. The shipments from the Pacific Northwest, shown graphically[9] for the last four years, clearly indicate the influence of shipments from that section on the total movement of the country. The peak shipments for the United States and for the Pacific Northwest occur between the 15th and 25th of October. In 1919 the peak for the Northwest was reached on October 17, when 516 cars were billed.

Every effort is made to place as many apples as possible in storage at diverting points and final destinations before the extreme cold weather sets in, and it will be noticed that the movement is more uniform and gradual after the middle of December.

The movement during the 1919–20 season was restricted and hampered by the generally congested conditions and an insufficient number of cars. Usually, practically all early varieties are shipped before December, when the movement of Winesaps begins, but in the 1919–20 season the Rome Beauty and even some Jonathan and Delicious varieties were not shipped until January. The movement of Winesaps did not begin until very late, and comparatively large quantities of this variety were still in common storage after the latter part of March.

Washington has made a steady and rapid increase in production, and in 1919 this State alone produced more apples than any other

[7] See Exhibit No. 5, p. 19. [8] See Exhibit No. 6, p. 19. [9] See Exhibit No. 7, p. 20.

State in the history of the country. The production in Oregon also exceeded that of all previous years. Idaho [9] had a lean year in 1916 and again in 1918, but in 1917 had a comparatively heavy production, and in 1919 an unusually large yield. Montana [9] has developed slowly but gradually, and in 1919 practically doubled the previous year's shipments.

MARKETING METHODS.

Growers in the Pacific Northwest market the fruit through various agencies, the most important being cooperative selling organizations, local dealers, traveling cash buyers, and commission merchants.

The cooperative method generally consists of collective selling by hired representatives of one or more groups of producers, and practically every type of cooperative organization has been in operation. Local associations are formed, consisting of a single group of growers, who employ a manager to transact their business and sell the output. Federations of local groups also are formed, the managers of the local units acting merely as intermediaries between the central organization and the local unit. The central organizations practically control sales, collections, inspections, and advertising, thus facilitating standardization and specialization.

Local dealers purchase the fruit from growers, buying outright for cash or on contract. In some sections local merchants have developed a merchandising department and advance supplies and equipment to growers whose fruit they buy or handle on consignment.

A limited quantity of fruit is handled on a strictly consignment basis by resident dealers. Such dealers often operate packing houses where the fruit is graded, sized, and packed for a certain fixed charge per box, which includes box shook, materials, and labor. Cash sales to traveling or to resident buyers who represent firms in terminal markets are common. Some of these representatives also act as growers' agents and accept shipments on consignment.

Direct sales or sales through brokers to firms in consuming centers are usually made on an f. o. b. basis. Particularly was this true during the fall of 1919, when many of these firms contracted with northwestern shippers for future delivery. Various conditions make it necessary or desirable to roll a large number of loaded cars unsold. Usually these tramp cars are destined to territories that seem to promise the best returns and generally are sold when near to a market. Many of these sales are made through brokers.

Railroad records show that in 1915 there were 461 consignors of apples from the Pacific Northwest. This number has materially increased with the development of the industry.

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[9] See Exhibit No. 7, p. 20.

By-products plants are rapidly developing and are taking more and more of the inferior and cull fruit, thus making possible a higher standard of grades and larger net returns to the producers.

Increasing production and a constantly increasing number of shippers have resulted in active competition with resultant improvement in the marketing systems. As the volume increases and the marketing problems become more complex, the development of cooperation between growers' selling organizations and sales agents becomes almost imperative.

DISTRIBUTION.

Apples shipped from the Pacific Northwest enjoy a wider distribution[10] than any other commodity shipped from one section. Reports of destinations from carriers for the last five years show that 2,567 cities were used as primary destinations.[11] No attempt has been made to show final destinations because a large percentage of shipments were diverted and, unfortunately, such diversion information is not available. It is believed, however, that a sufficiently large number of primary destinations for the last five years were final destinations to make it fair to use this information as a basis for the further development of car-lot markets.

Telegraphic reports of shipments from the railroads during the 1919–20 season showed that about 1,400 cities received car-lot shipments of apples from the Pacific Northwest. It is safe to assume that complete diversion information would show a very much larger number of cities to which shipments were made.

New car-lot markets are being developed, particularly in the Central Plains, Middle Western, Southwestern, and Southeastern States. Not taking into account the shipments to the large markets and billings to Chicago and Minneapolis for consumption and diversion, small markets in these four sections of the country received about one-fourth of the 1919 northwestern crop. Diversions from Chicago and points west of Chicago would probably show that many more cars were finally received in the smaller markets, particularly in the Southwest and Southeast.

EXPORT SHIPMENTS.

Apples grown in the Pacific Northwest have been exported to practically all the continents on the globe, including Europe, Asia, Africa, Australasia, South America, and to the Dominion of Canada and Cuba. The development of steamship refrigerating facilities will doubtless increase these exports.

Exports[12] of apples from the United States during the 1916–17 season were reduced because of greatly increased risks and high war

[10] See Exhibit No. 8, p. 20. [11] See Exhibit No. 9, p. 20. [12] See Exhibit No. 10, p. 27.

insurance premiums. The use of shipping space for transporting war materials, together with measures taken by belligerent Governments to limit the importation of such commodities as apples also interfered. The exports during the following year were less than one-third of those during 1916–17. After the signing of the armistice there was an unusual export demand and shipments from the United States rapidly increased. The total for February, 1919, almost equals the entire 1917–18 exports.

Apple operators planned for even heavier exports during 1919–20, but, largely because of the very unfavorable rate of exchange, the exporting of apples became unprofitable and by February, 1920, shipments were reduced to the equivalent of 90,000 barrels for that month.

F. O. B. PRICES.

In making price studies[1] reports of sales from all classes of shippers were used. The price differentials between Extra Fancy, Fancy, and "C" grade are fairly uniform; therefore, only the Extra Fancy grade has been used and no sales of small sizes have been considered.

The price trend[1] for the last four years for f. o. b. sales at shipping points in the Pacific Northwest shows a steady advance. In 1916–17 there was a moderate range but a fairly uniform level to December. The 1917–18 season shows a comparatively small range in price but a generally higher level than the preceding season closing in March at prices somewhat above the opening. Prices opened at a higher level in 1918–19 than the closing of the previous season with gradual upward fluctuations from the first to the last of December, and then advanced rapidly to the close of the season in March to the highest prices ever realized in the Pacific Northwest.

The 1919–20 season opened at a price level of about $1 above the previous year's opening. Doubtless this can be attributed to the high prices which prevailed in the spring of 1919 and the unusual export demand, causing very active competition among apple buyers, who paid unusually high prices to growers. The great variance in the condition of the fruit was reflected in the wide price range which prevailed practically throughout the season. The variance was brought about by more or less careless handling, due largely to the pressure of getting the enormous crop picked, packed, and shipped or stored, inadequate and congested storage facilities which made much rehandling necessary, the October freeze, car shortages, and extremely cold weather in December. The top range of the price level continued fairly uniform until the latter part of February, when slow but steady advances finally closed in March at a little above the top opening prices. The extreme cold weather, a shortage

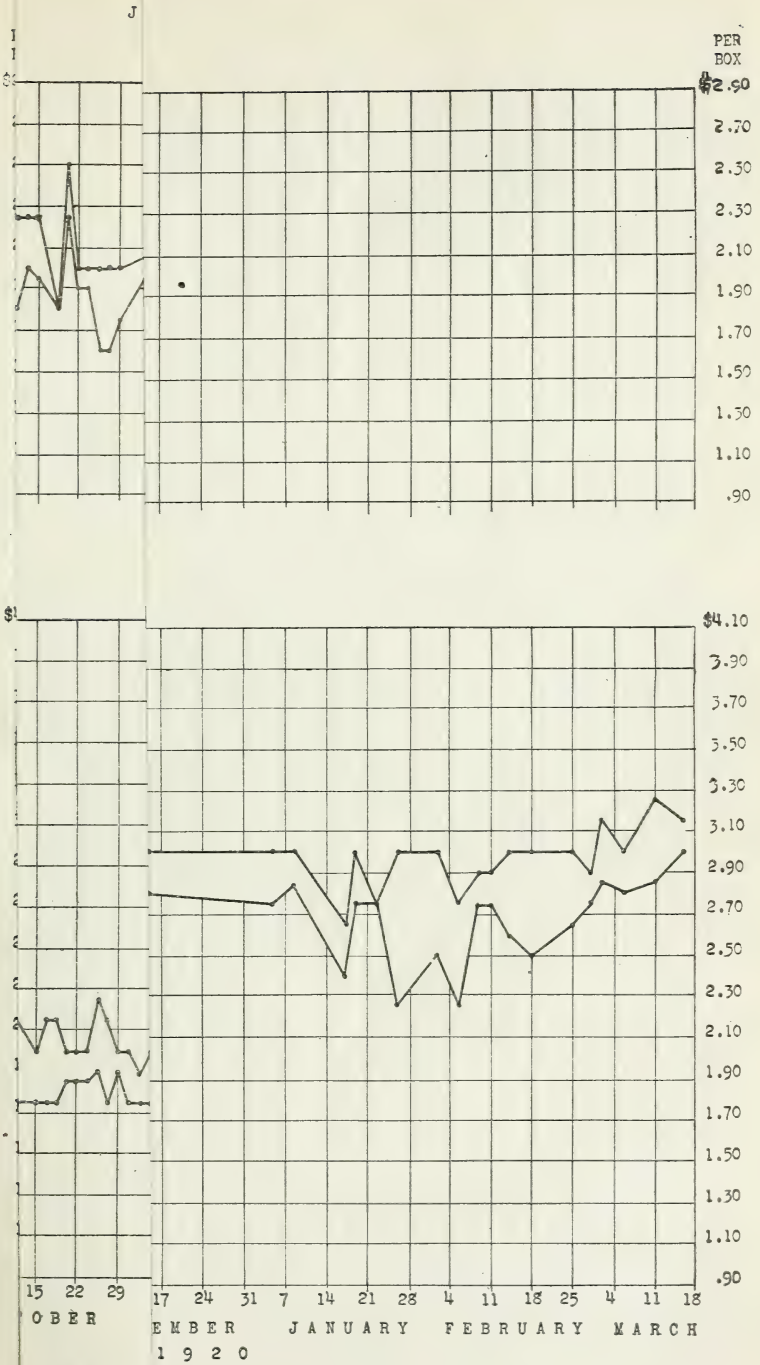
[1] See Exhibit No. 1, p. 11.

of cars, and a very limited demand from the latter part of November until the first part of January greatly restricted sales. During this period a very large percentage of the shipments were rolled unsold and many cars that moved in this way were forced on the large markets and sold finally at auction and on private sale at heavy discounts. Practically all sales of rollers were made at a lower figure than f. o. b. sales and showed a wider range. Reports from the large terminal markets showed price ranges of as much as $3 on the Extra Fancy grade. Freezing damage in transit was largely the cause of the very wide range in auction sales.

Although prices paid for apples in the fall of 1919 were higher than markets afterwards warranted and caused heavy losses to many operators, the average price at consuming centers was high for the season as a whole, considering the size of the crop.

As a brief summing up of the whole question of marketing northwestern boxed apples, it may be said that the present proportions of the industry have been made possible only by the progressive spirit by which it is characterized.

In the establishment of standards for color full advantage has been taken of the fact that a large percentage of well-colored specimens is usually produced in the Northwest. The market value of the fruit has been enhanced in this way. The State governments have been active in guarding against the shipment of inferior fruit and dishonest packs, so that the northwestern crop as a whole has been handled and marketed in general conformity to more uniform and rigid standards than have prevailed in other sections of equally heavy production. There is perhaps no more striking proof than is here afforded of the dominating importance of standardization as a factor in the successful large scale marketing of perishable farm products.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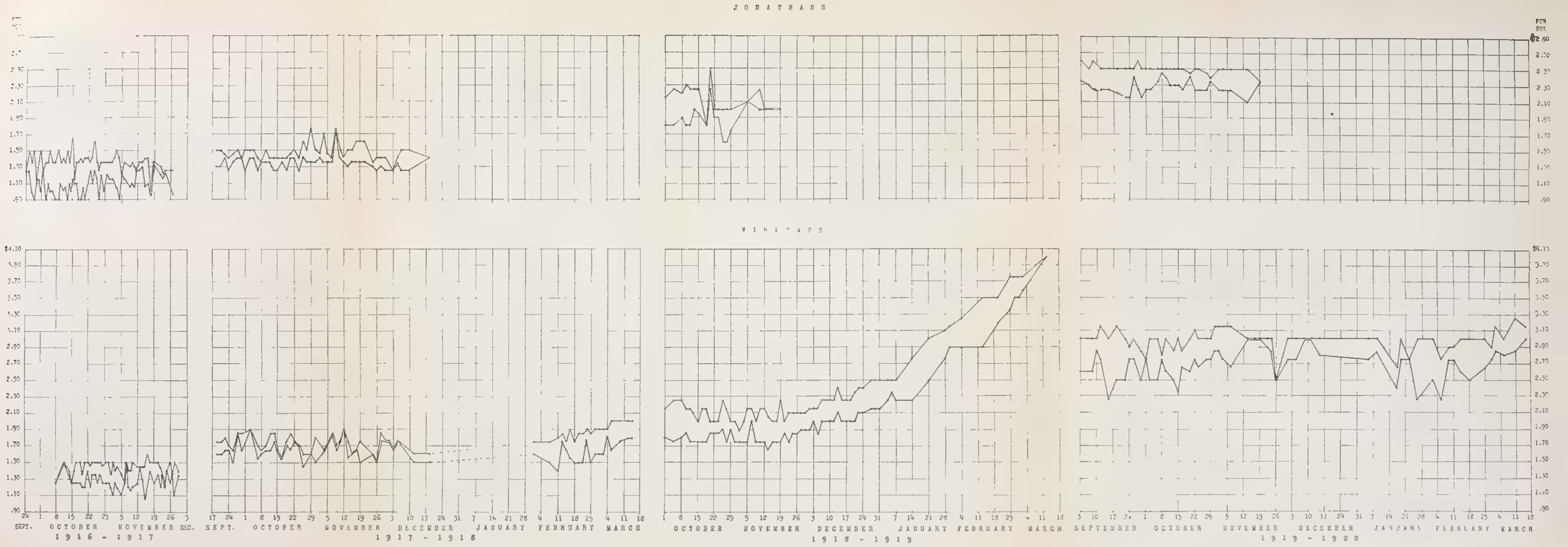

EXHIBIT No. 1.—F. o. b. prices of Northwestern boxed apples.

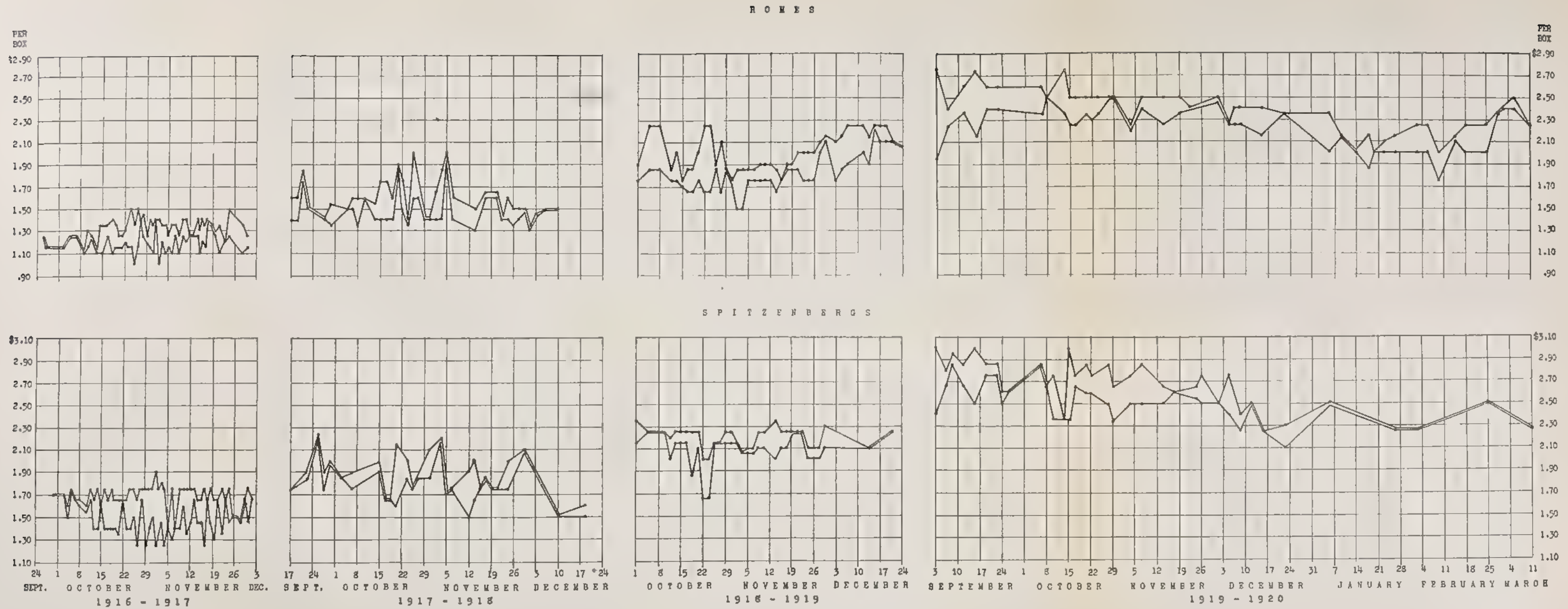

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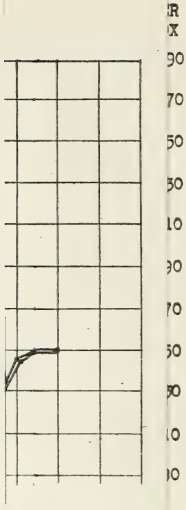
EXHIBIT No. 1 (Continued).—F. o. b. prices of Northwestern boxed apples.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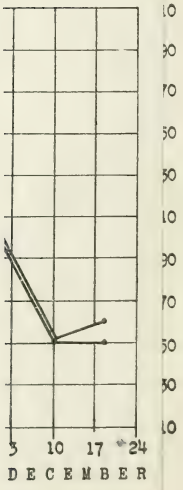
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APPENDIX.

EXHIBIT No. 1.

F. O. B. PRICES OF NORTHWESTERN APPLES.

(See folding charts.)

Extra Fancy Jonathan.—The prices shown on this chart represent sales f. o. b. shipping point. The data for 1916–17 represent 328 cars; 1917–18, 761 cars; 1918–19, 169 cars; 1919–20, 2,707 cars. Sales of the Extra Fancy grade only were used, and sales of tramp cars or rollers were not taken into consideration. The dots showing the price changes indicate the dates on which sales were recorded. Either no sales were made or no records were available on the dates between the dots.

Extra Fancy Winesap.—The prices shown on this chart represent sales f. o. b. shipping point. The data for 1916–17 represent 142 cars; 1917–18, 583 cars; 1918–19, 1,967 cars; 1919–20, 2,877 cars. Sales of the Extra Fancy grade only were used, and sales of tramp cars or rollers were not taken into consideration. The dots showing the price changes indicate the dates on which sales were recorded. Either no sales were made or no records were available on the dates between the dots.

Extra Fancy Rome Beauty.—The prices shown on this chart represent sales f. o. b. shipping point. The data for 1916–17 represent 95 cars; 1917–18, 228 cars; 1918–19, 260 cars; 1919–20, 1,268 cars. Sales of the Extra Fancy grade only were used, and sales of tramp cars or rollers were not taken into consideration. The dots showing the price changes indicate the dates on which sales were recorded. Either no sales were made or no records were available on the dates between the dots.

Extra Fancy Spitzenberg.—The prices shown on this chart represent sales f. o. b. shipping point. The data for 1916–17 represent 165 cars; 1917–18, 127 cars; 1918–19, 284 cars; 1919–20, 626 cars. Sales of the Extra Fancy grade only were used, and sales of tramp cars or rollers were not taken into consideration. The dots showing the price changes indicate the dates on which sales were recorded. Either no sales were made or no records were available on the dates between the dots.

EXHIBIT No. 2.

Pacific Northwest car-lot shipments of apples, 1919–20 season, by States, principal districts, and shipping stations.

SUMMARY, BY STATES.

	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Total.
Washington	32	167	1,763	9,401	6,770	1,787	1,854	1,881	1,930	1,094	473	16	27,168
Oregon	2	9	195	1,354	1,478	781	798	406	232	108	80	.....	5,443
Idaho	4	5	542	1,767	872	229	192	193	113	20	6	.....	3,943
Montana	.....	23	108	269	73	8	5	4	5	5	.....	.....	500
Total	38	204	2,608	12,791	9,193	2,805	2,849	2,484	2,280	1,227	559	16	37,054

Pacific Northwest car-lot shipments of apples, 1919–20 season, by States, principal districts, and shipping stations—Continued.

SUMMARY, BY DISTRICTS.

	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Total.
Wenatchee Valley district	3	46	633	3,773	3,438	827	877	799	916	776	40	.....	12,128
Yakima Valley	25	110	964	4,007	2,105	742	795	974	951	284	425	14	11,396
South Idaho	4	5	532	1,579	752	203	185	174	108	20	6	.....	3,568
Hood River	.....	4	52	738	939	467	608	336	199	101	75	.....	3,519
Spokane district	.....	3	93	1,221	857	131	126	90	50	31	8	2	2,612
Walla Walla	3	8	93	500	427	98	51	46	12	.....	.....	.....	1,238
West Oregon	2	3	48	291	270	132	43	18	26	5	5	.....	843
Medford - Rogue River	.....	1	55	222	156	137	97	14	10	2	.....	.....	694
East Oregon	.....	1	30	185	173	57	55	23	3	1	.....	.....	528
Montana	.....	23	108	269	73	8	5	4	5	5	.....	.....	500
West Washington	1	.....	.....	6	3	3	7	6	.....	2	.....	.....	28
Total	38	204	2,608	12,791	9,193	2,805	2,849	2,484	2,280	1,227	559	16	37,054

WENATCHEE VALLEY DISTRICT.[1]

Stations.	September.	October.	November.	December.	January.	February.	March.	April.	Total.
Appledale	7	10	4	.....	.....	.....	.....	.....	21
Brewster	37	160	125	42	16	16	11	9	416
Cashmere	29	310	352	85	174	110	163	195	1,423
Chelan	13	184	188	68	56	43	77	21	650
Dryden	11	106	117	29	55	21	53	92	492
Ellisford	.....	3	7	.....	1	20	.....	.....	31
Entiat	42	200	186	54	60	29	41	23	639
Leavenworth	3	25	35	9	4	9	1	.....	86
Malaga	6	78	69	21	13	21	27	7	245
Mallott	.....	20	.....	.....	.....	2	.....	.....	22
Monitor	35	210	211	45	35	32	35	40	644
Monse	.....	4	1	.....	.....	.....	.....	.....	5
Ohio Colony Spur	18	41	22	.....	.....	40	.....	.....	121
Okanogan	24	102	101	12	3	17	37	21	317
Olds	71	251	234	77	72	59	42	32	838
Omak	13	319	257	20	27	44	150	33	869
Oroville	2	41	19	2	6	2	2	1	75
Palisades	10	.....	26	18	1	.....	.....	.....	55
Pateros	36	159	139	38	29	11	7	.....	419
Peshastin	13	131	133	35	76	42	22	23	476
Riverside	.....	1	8	.....	.....	.....	.....	.....	9
Starr	.....	1	1	2	.....	.....	.....	.....	4
Steno	.....	7	.....	.....	.....	.....	.....	.....	7
Tonasket	.....	37	46	9	9	5	1	.....	107
Wagnersburg	4	42	50	8	2	3	9	15	134
Wells	2	17	3	10	1	.....	.....	.....	33
Wenatchee	255	1,295	1,083	239	233	248	237	264	3,914
Winesap	.....	6	9	4	4	.....	1	.....	24
Zena	2	11	10	.....	.....	.....	.....	.....	23
Total	633	3,773	3,438	827	877	774	916	776	12,103

[1] Totals include following shipments: 3 cars in July, 46 cars in August, and 40 cars in May; also 1 car from Moses Coulee and 3 from Vulcan.

Pacific Northwest car-lot shipments of apples, 1919–20 season, by States, principal districts, and shipping stations—Continued.

YAKIMA VALLEY DISTRICT.[2]

Stations.	September.	October.	November.	December.	January.	February.	March.	April.	Total.
Benton	24	37	8		1	7	3		80
Buena	43	126	60	16	14	22	35	14	347
Byron	1	23	4	2					30
Dalton	4								4
Donald	2	6	7	1					20
Ellensburg		23	7		3				33
Grandview	175	533	263	62	68	72	46	8	1,233
Granger	20	66	20	8	19	1	5	1	141
Hanford	17	39	33	2	2	6	7		109
Kennewick	105	248	158	59	61	31	13		677
Kittitas			5	4					9
Mabton	37		33	11	2				83
Naches	3	61	41	21	19	22	2		169
Outlook	3	19	1						23
Parker	3	12	3						18
Pasco	3	6	8					1	20
Plymouth		6							6
Prosser	51	148	79	31	32	15	2	2	360
Selah	21	196	68	66	43	40	30	10	495
Sunnyside	46	117	48	14	3				244
Thrall	2	19	12	3					36
Toppenish	55	151	79	10	8	5	6		315
Wapato	66	158	71	35	35	38	27	3	481
White Bluffs	29	47	43	1	4	2	8		135
Yakima	183	1,640	865	331	430	575	640	199	5,233
Zillah	71	323	189	65	51	138	127	46	1,092
Total	964	4,007	2,105	742	795	974	951	284	11,396

SOUTHERN IDAHO DISTRICT.[3]

Boise		41	14						55
Buhl	22	45	9	3	5	2			86
Caldwell	63	133	4						200
Council	8	66	28	4	9	5			120
Emmett	17	54	19	3	2	3	4		102
Filer	3	14	18	5					40
Fruitland	115	214	169	91	76	73	29		773
Kimberly	7	33	7		1				48
Kuna		12				5	1		18
Meridian		21	3						24
Nampa	14	182	85	12	13				306
New Plymouth			66	27	27	25	25		170
Parma	60	119	37	9					225
Payette	121	360	168	39	45	51	49	20	862
Twin Falls	83	153	47	9	6	10			308
Weiser	18	119	73	1					211
Wendell		4							4
Wilder	1	3							4
Total	532	1,579	752	203	185	174	108	20	3,568

[2] Totals include following shipments: 25 cars in July, 110 in August, 425 in May, and 14 in June; also 1 car from Thorp and 2 from Marlin.

[3] Totals include following shipments: 4 cars in July, 5 in August, and 6 in May; also 1 car from Montour, 2 from Blackfoot, and 3 each from Houston, Pocatello, and Shoshone.

Pacific Northwest car-lot shipments of apples, 1919–20 season, by States, principal districts, and shipping stations—Continued.

WHITE SALMON AND HOOD RIVER DISTRICT.[4]

Stations.	September.	October.	November.	December.	January.	February.	March.	April.	Total.
Dee, Oreg.		4	9	4	13	1			31
Dufur, Oreg.		70	40	1					111
Hood River, Oreg.	39	236	328	251	191	134	79	87	1,421
Lents (Portland), Oreg.			4	2	2				8
Mohr, Oreg.			8	1	5	2	6		22
Mosier, Oreg.	4	10	65	16	29	32	10	1	167
Odell, Oreg.	2	129	142	64	132	30	36	1	538
Parkdale, Oreg.	3	28	31	11	46	27	2		149
Summitt, Oreg.		2	2	9	3	2	1		19
The Dalles, Oreg.		8	13	6	1	1		2	31
Troutcreek, Oreg.		5	7	2					14
Van Horn, Oreg.		79	128	44	166	99	59	9	584
Woodworth, Oreg.	1	2	3	3		2			11
Goldendale, Wash.		9	12						21
Underwood, Wash.	1	92	74	17	12	2	4		202
White Salmon, Wash.		64	73	36	8	3	2	1	187
Total	52	738	939	467	608	336	199	101	3,519

SPOKANE DISTRICT.[5]

Addy		3	6						9
Bonners Ferry, Idaho		8	3						11
Colville		4	2						6
Coulee City	5	7	9			8			29
Creston	5	34	2						41
Davenport	1	26	12	4					43
Davies Spur, Wash.			10						10
Dean, Wash.		5							5
Deer Park	7	20	11	1					39
Denison			11						11
Dishman	16	143	26	9	22	6	2		224
Ephrata		8	12						20
Fairfield, Wash.		35	27		2				64
Farmington, Wash.		4	7			1			12
Four Lakes		30	19	7	12	7			75
Garfield		3	4						7
Greenacres		29	13		1		1		44
Hillyard	7	55	3	11	2	1	2		81
Hooper		8							8
Marcus	1	16	3			1			21
Meyers Falls	5	89	40	8	14		1		157
Millwood		9	1						10
Neppel	13	78	44	2					137
Northport		5	3			1	1		10
Opportunity			141						141
Otis Orchards	1	99	69	6	21	5			201
Pullman			4	5					9
Quincy		11	4						15
Soap Lake		21	23	5	1				50
Spokane	2	154	119	25	29	32	38	31	441
Spokane Bridge		3	10						13
Sprague			22						22
Trinidad	20	48	11		2				83
Vera			13						13
Waverly, Wash.		18	10	1	3	1			33
Wilson Creek, Wash.		55	36	20	10	8			129
Coeur d'Alene, Idaho		48	28						76
Hauser, Idaho		4	8						12
Lewiston, Idaho	9	110	71	25	7	19	5		246
McGuires, Idaho		7							7
Moscow, Idaho		10	1						11
Post Falls, Idaho	1	2	9	1					13
Total	93	1,221	857	131	126	90	50	31	2,612

[4] Totals include the following shipments: 4 cars in August and 75 cars in May; also 1 car from Holstein, Oreg., and 2 from Maryhill, Wash.

[5] Totals include following shipments: 3 cars in August, 8 cars in May, and 2 cars in June; also 1 car each from Albion, Wash., Colfax, Loon Lake, Usk, Alan, Laclede, and Porthill, Idaho; 2 cars each from Chewelah, Dart, Kiesling, Genessee, and Rose, Idaho; and 3 cars each from Galena, Idaho, and Valleyford, Wash.

Pacific Northwest car-lot shipments of apples, 1919–20 season, by States, principal districts, and shipping stations—Continued.

WALLA WALLA-MILTON-FREEWATER DISTRICT.[6]

Stations.	September.	October.	November.	December.	January.	February.	March.	April.	Total.
Ayer Junction, Wash.			5						5
Dayton, Wash.	11	82	53	9	12	6	8		181
Dixie, Wash.		3	3						6
Prescott, Oreg.			2						4
Touchet, Wash.	11	30	36	6	3				86
Waitsburg, Wash.	6	67	61	7	12	11	3		167
Walla Walla, Wash.	40	201	142	33	9	9	1		443
Wallula, Wash.	12	31	26	2					72
Milton-Freewater, Oreg.	13	83	99	41	15	20			271
Total	93	500	427	98	51	46	12		1,238

WESTERN OREGON DISTRICT.[7]

Albany	1	3	8						12
Brogan	7	29	15						51
Brownsville			4						4
Corvallis	3	10	4	1	2				20
Creswell	1	19	20	2		5			47
Dallas		8	10	1					19
Drain		2	2						4
Eugene	5	16	18	1					41
Halsey		2	1	1					5
Hillsboro	1	3							4
Hubbard	2	6	2	1	1				12
Junction City	4	5		1	1	1			14
Lafayette		8	8	9					25
Lebanon				3	2				5
McMinnville	3	14	11	7	2				37
Monmouth	1	3							4
Monroe	1	11	7	6					25
Newberg	1	31	27	5	4				68
Portland		2	2	2	4	6	26	5	52
Riddle		6	12	2					20
Roseburg	5	32	63	70	6				176
Salem	5	26	14	4					49
Sheridan	2	13	17	5	14	5			56
Silverton		4	2						6
Tigard	2		3						6
Tualatin		4	1						5
Wilsonville		5	3	5	3	1			17
Yoncalla		8							8
Total	48	291	270	132	43	18	26	5	813

MONTANA DISTRICT.[8]

Darby	10	26	7	1					46
DeSmet		2	2	1		1			6
East Bridger	1	4							5
Fromberg	8	2							13
Hamilton	49	104	35	5	1	1	5	2	208
Lo Lo		2	1		1	1			5
Silesia	4	4							8
Somers		3	4						7
Stevensville	11	41	8					1	62
Victor	1	20	6		1	1			31
Woodside	21	55	9		2				94
Total	108	269	73	8	5	4	5	5	500

[6] Totals include following shipments: 3 cars in July and 8 in August; also 3 cars from Attalia, Wash.

[7] Totals include following shipments: 2 cars in July, 3 cars in August, and 5 cars in May; also 1 car each from Amity, Cottage Grove, Deer Island, Garden Home, Gaston, Gray, Mount Angel, Waconda, and Willamina; 2 cars each from Coburg, Fairview, Fall City, Forest Grove, Monitor, Myrtle Point, Robinson, Sherwood, and Springfield; and 3 cars each from Chemawa, Clackamas, Crabtree, Dayton, Fayetteville, West Scio, Wigrich, and Woodburn.

[8] Totals include following shipments: 23 cars in August; also 1 car each from Billings, Flaxville, Helena, Livingston, and Polson; 2 cars each from Park City and Ravalli; and 3 cars each from Edgar and Missoula.

Pacific Northwest car-lot shipments of apples, 1919–20 season, by States, principal districts, and shipping stations—Continued.

WESTERN WASHINGTON.[9]

Stations.	September.	October.	November.	December.	January.	February.	March.	April.	Total.
Seattle		3			7	6			16
Tacoma			2					2	4
Total		6	3	3	7	6		2	28

ROGUE RIVER, OREG., DISTRICT.[10]

Ashland	1	17	13	3	2	1			37
Central Point	2	11	10	1					24
Gold Hill	3	12	10	3					28
Grants Pass	13	35	27	19				1	96
Medford	28	133	88	99	95	13	10	1	467
Rogue River	7	11	6	6					30
Talent	1	2	2	5					10
Total	55	222	156	137	97	14	10	2	694

EASTERN OREGON.[11]

Beaverton		1	4		1				7
Cairo		7							7
Cove		11	6	1	3	7			28
Elgin		1	13	7	9				30
Hermiston	4	17	16	4					41
Huntington		2				1	1	1	5
Imbler	2	11	44	11	35	15			118
Irrigon		1	2	1					4
La Grande		24	29	10	7		2		72
Mallett		2							2
Nyssa	13	29	6	9					57
Ontario	1	15	17	6					39
Stanfield	4	22	17						43
Union		18	10	1					29
Vale	6	23	9	6					44
Total	30	185	173	57	55	23	3	1	528

[9] Totals include following shipments: 1 car in July; also 1 car each from Everett, Port Angeles, and Woodland; 2 cars from Kelso; and 3 cars from Vancouver.
[10] Totals include following shipments: 1 car in August; also 2 cars from Merlin.
[11] Totals include following shipments: 1 car in August; also 1 car each from Jamieson and North Powder.

EXHIBIT No. 3.

The car-lot shipment figures in the following tabulation were taken from telegraphic reports from division superintendents of common carriers. These figures are given here to show by comparison the relative importance of the main apple-producing sections of the United States.

The Central Appalachian section consists mainly of the important apple-producing portions of Virginia and West Virginia and a few contiguous counties of Maryland and Pennsylvania. Most of this section lies within the watershed of the Potomac and its tributaries.

Shipments of less than car lots and apples brought into large terminal markets from near-by producing sections are not included.

	Washington.	Oregon.	Idaho.	Montana.	Total Pacific Northwest.	New York.	Central Appalachian.	Total United States.
1916–17..	14,426	3,041	182	145	17,693	10,206	11,748	57,821
1917–18..	15,837	3,448	3,528	171	22,984	5,867	7,212	58,534
1918–19..	16,232	2,246	536	262	19,276	22,900	9,625	69,552
1919–20..	24,476	4,768	3,574	452	33,270	10,234	11,392	82,514

EXHIBIT No. 4.

GRADING RULES AND REGULATIONS FOR APPLES.

[As adopted by Washington State Department of Agriculture.]

DEFINITION OF TERMS.

Tolerance.—In order to provide for the variations incident to commercial grading and handling, a "tolerance" of 5 per cent for a total of all defects from the standard will be permitted in all grades, and shall be computed by counting, weighing, or measuring the specimens judged to be below the standard of the grade.

Uniform in size.—The term "uniform in size" shall be construed to mean that apples in any one package shall not vary more than one-half inch in their greatest transverse diameter.

Packing.—The term "properly packed" shall refer to the arrangement of apples in each package; apples to be properly packed shall be arranged in the container according to the approved and recognized methods, and all packages shall be tightly filled, but the contents shall not show excessive or "unnecessary bruising" as a result of the pressure exerted in inclosing an overfilled package.

APPLE-GRADING RULES.

(Season 1920.)

Extra Fancy.—Extra Fancy apples are defined as sound, mature, clean, hand-picked, well-formed apples only, free from all insect pests, diseases, blemishes, bruises and holes, spray burns, limb rub, visible water core, skin punctures or skin broken at stem, but slight russeting within the basin of the stem shall be permitted.

Fancy Grade.—Fancy apples are defined as apples complying with the standard of Extra Fancy Grade, except that slight leaf rubs, scratches, or russeting shall be permitted up to a total of 10 per cent of the surface, and provided that scab spots not larger than one-quarter inch in diameter in the aggregate shall be permitted in this grade.

"*C*" *Grade.*—"C" Grade apples shall consist of sound, mature, hand-picked apples which are practically free from infection, bruising, or broken skin, and which are not badly misshapen, provided that two healed worm stings, slight sun scald, and scab up to a total of one-half inch in diameter shall be permitted in this grade.

Combination Grade.—When Extra Fancy and Fancy apples are packed together, the boxes must be marked "Combination Extra

Fancy and Fancy." When Fancy and "C" Grade apples are packed together, the box must be marked "Combination Fancy and 'C' Grades." Combination grades must contain at least 25 per cent of apples which are of such grade as would be permitted in the higher grades. None of the higher-grade apples shall be sorted out of any lot and the remainder packed as combination grade.

Orchard Run.—When Extra Fancy, Fancy, and "C" Grade apples are packed together, the boxes must be marked "Orchard Run," but Orchard Run apples must not contain any fruit that will not meet the requirements of "C" Grade. It shall be unlawful to remove any of the higher-grade apples from any lot and then pack the remainder as "Orchard Run."

Unclassified.—All firm apples which are practically free from infection, but which do not conform to the foregoing specifications of grade, or, if conforming, are not branded in accordance therewith, shall be classed as "Unclassified" and so branded, provided that no restriction shall be placed on the number of worm stings admitted to this class. Open wormholes will not be permitted. This grade must be plainly marked with the word "Unclassified."

COLOR REQUIREMENTS.

Apples shall be admitted to the First and Second grades subject to the following color specifications. The percentage stated refers to the area of the surface which must be covered with a good shade of red.

	Extra Fancy.	Fancy.
SOLID RED VARIETIES.	*Per ct.*	*Per ct.*
Aiken Red	75	25
Arkansas Black	75	25
Baldwin	75	25
Black Ben Davis	75	25
Detroit Red	75	25
Gano	75	25
King David	75	25
Red June	75	25
Spitzenburg Esopus	75	25
Spitzenburg Kaign	75	25
Vanderpool	75	25
Winesap	75	25
Jonathan	66⅔	25
McIntosh Red	66⅔	25
STRIPED OR PARTIAL RED VARIETIES.		
Delicious	66⅔	25
Stayman Winesap	66⅔	25
Black Twig	50	25
Ben Davis	50	15
Bonum	50	15
Fameuse	50	15
Geniton	50	15
Hubbardston	50	15
Limbertwig	50	15
Missouri Pippin	50	15
Northern Spy	50	15
Ontario	50	15
Red Astrachan	50	15
Rainier	50	15
Rome Beauty [1]	50	15
Salome	50	15
Stark	50	15
Sutton	50	15
STRIPED OR PARTIAL RED VARIETIES—continued.		
Willow Twig	50	15
Wagener	50	15
Wealthy	50	15
York Imperial	25	10
Alexander	25	10
Chenango	25	10
Gravenstein	25	10
Jeffries	25	10
King	25	10
Oldenburg	25	10
Shiawassee	25	10
Twenty Ounce		
RED CHEEKED OR BLUSHED VARIETIES.		
(Extra Fancy, perceptibly blushed cheek; Fancy, tinge of color.)		
Hydes King		
Maiden Blush		
Red Cheek Pippin		
Winter Banana		
GREEN AND YELLOW VARIETIES.		
(Extra Fancy, characteristic color; Fancy, characteristic color.)		
Grimes Golden		
Yellow Newtown		
White Winter Pearmain		
Cox's Orange Pippin		
Ortley		
Yellow Bellefleur		
Rhode Island Greening		

[1] No color requirement on Fancy Rome Beauty 96 and larger.

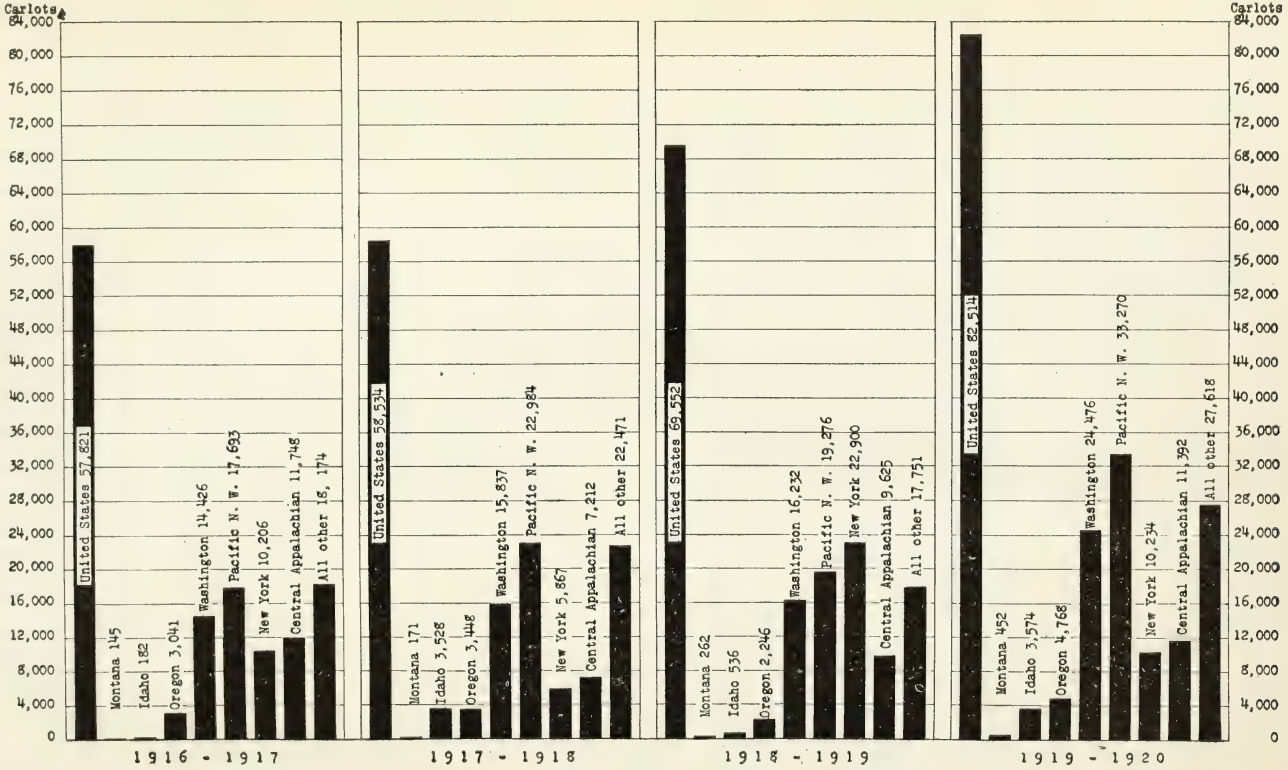


EXHIBIT No. 6.—Total carlot shipments of apples for the United States and the three principal apple-producing sections of the country. 1916–1917 to 1919–1920.

EXHIBIT No 5.

The following table shows the cold-storage holdings in the United States of boxed and barreled apples on December 1, 1916, 1917, 1918, and 1919, segregated geographically. These figures were compiled from monthly reports submitted to the Bureau of Markets by all the principal cold storages and represent the greater part of stocks held in cold storage on December 1 of each of the years mentioned:

	Year.	Boxes reduced to car lots.	Barrels reduced to car lots.	Total car lots.
Connecticut, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Pennsylvania, New Jersey, New York, Delaware, Maryland, District of Columbia, Virginia, West Virginia.	1916	1,009	11,401	12,410
	1917	936	10,496	11,432
	1918	1,128	13,688	14,816
	1919	1,848	12,950	14,798
Florida, Georgia, North Carolina, Alabama, South Carolina, Kentucky, Louisiana, Tennessee, Mississippi.	1916	146	1,170	1,316
	1917	219	1,454	1,673
	1918	262	1,121	1,383
	1919	332	981	1,313
Illinois, Indiana, Michigan, Ohio, Iowa, Wisconsin, Kansas, Minnesota, Nebraska, Missouri, North Dakota, South Dakota.	1916	1,786	8,502	10,288
	1917	1,785	8,822	10,607
	1918	1,815	5,562	7,377
	1919	3,337	6,323	9,660
Oklahoma, Texas, New Mexico, Arkansas, Colorado	1916	474	205	679
	1917	599	386	985
	1918	644	122	766
	1919	801	521	1,322
Arizona, California, Nevada, Utah	1916	1,376	.....	1,376
	1917	1,574	.....	1,574
	1918	1,663	.....	1,663
	1919	1,897	.....	1,897
Idaho, Montana, Wyoming, Oregon Washington	1916	2,150	.....	2,150
	1917	1,873	.....	1,873
	1918	1,509	.....	1,509
	1919	2,104	.....	2,104
United States	1916	6,941	21,278	28,219
	1917	6,986	21,158	28,144
	1918	7,021	20,493	27,514
	1919	10,319	20,775	31,094

EXHIBIT No. 6.

(See preceding chart.)

The preceding chart shows the season's car-lot shipments for the United States, Pacific Northwest, New York State, and the Central Appalachian district for the crop years 1916 to 1919. The figures used in this chart were telegraphed daily by the division superintendents of the railroads on which shipments of apples originated. It will be noted that these daily reports aggregate 33,270 cars for the Pacific Northwest for the 1919–20 season, while the reports by shipping stations, as shown in Exhibit No. 2, aggregate 37,054. The larger total is probably more accurate, but the former is used in this chart to bring about more uniform comparison between figures for the Pacific Northwest and the other sections mentioned.

EXHIBIT No. 7.

(See folding chart.)

The figures used in making this chart showing the rate of movement for each of the last four years, indicating the influence of shipments from the Pacific Northwest on the total movement for the United States, were taken from daily telegraphic reports of shipments from division superintendents from all roads in the country on which car-lot shipments of apples originated.

In making this chart semimonthly periods were used. The rate of movement line and the line over the 16th and 1st of each month indicate the number of cars which moved during that period.

EXHIBIT No. 8.

(See following maps.)

The dots on these maps show the points to which apples were destined from the Pacific Northwest, New York State, and the central Appalachian section, respectively. These show primary destinations only, as diversion information was incomplete and in most cases not available.

The map representing destinations from the Pacific Northwest covers a period of five years. The destinations shown for New York State and the Central Appalachian section cover a period of two years.

EXHIBIT No. 9.

In the following tabulation are shown the primary destination of about 30,000 cars shipped from the Pacific Northwest during the 1919–20 season.

This list represents primary distribution only. Complete diversion information would probably show a much larger list of destinations. The tabulation showing shipments originally destined to 2,567 cities and towns indicates the widespread distribution of northwestern apples.

UNITED STATES.

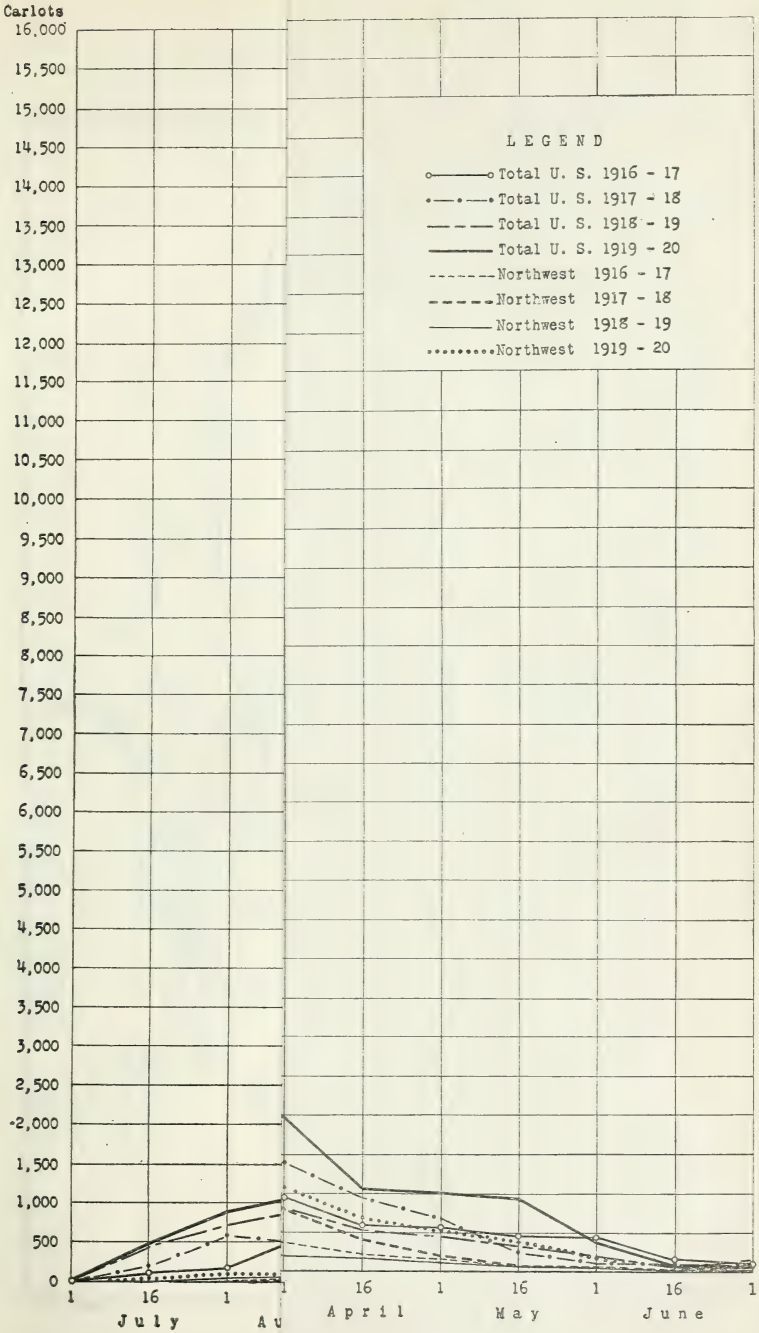
Alabama:[1]		Arkansas:[3]	
Birmingham	55	Fort Smith	10
Mobile	29	Jonesboro	7
Montgomery	28	Little Rock	25
Arizona:[2]		Texarkana	22
Bisbee	14	California:[4]	
Douglas	6	Fresno	11
Phoenix	13	Los Angeles	139
Tucson	4	Oakland	27

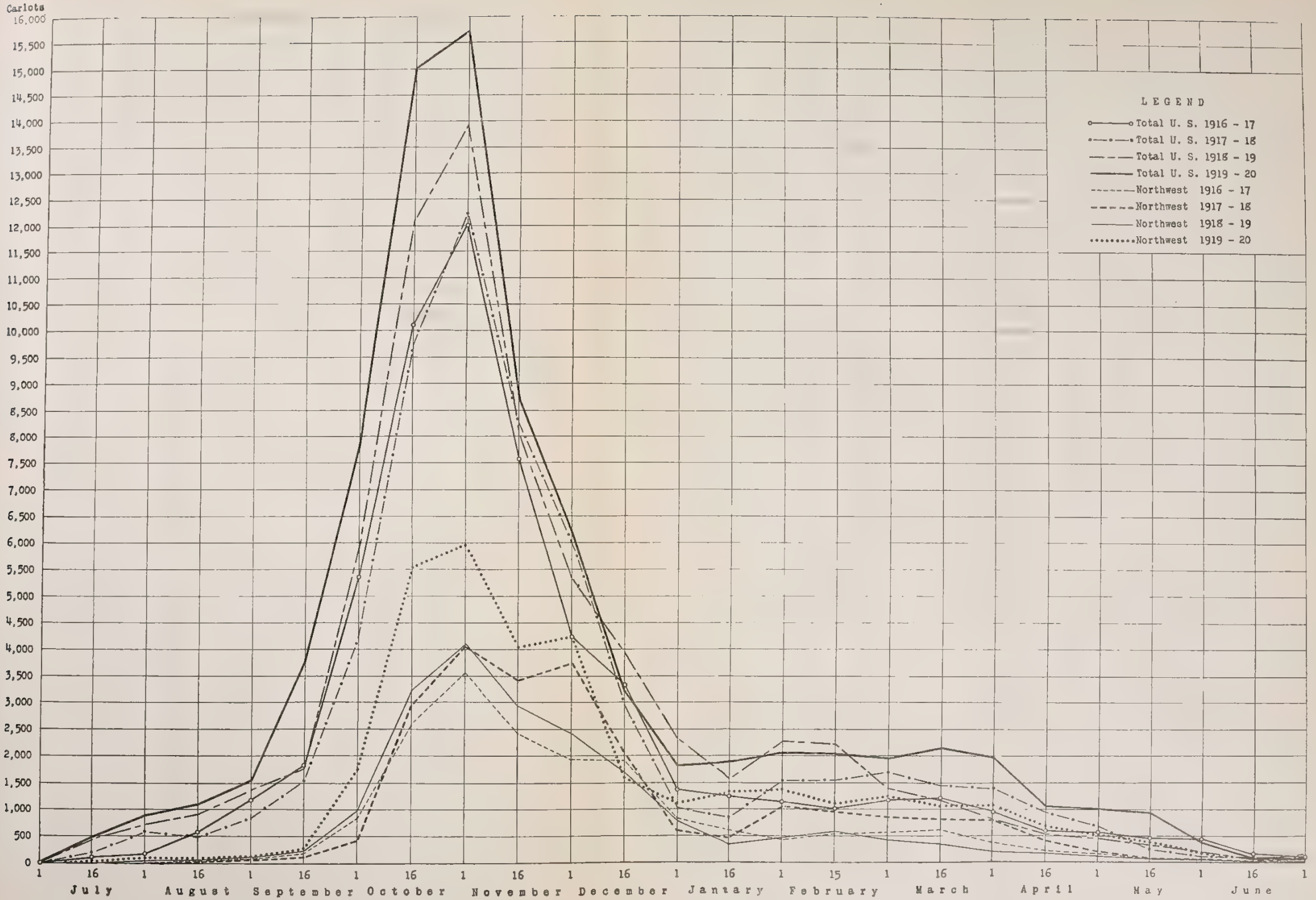
[1] The following additional consignments were made to Alabama points: 1 car each to Gallion, Haynes, Huntsville, Pierce, Pineville, and Selma; 2 cars to Paul; 3 cars to Dotham.

[2] The following additional consignments were made to Arizona points: 1 car each to Del Rio, Flagstaff, Gadsden, and Yuma.

[3] The following additional consignments were made to Arkansas points: 1 car each to Blytheville, Centerville, Elnora, Faith, Foreman, Franklin, Hope, Hot Springs, Pine Bluff, Rhyme, and Turn Bull; 2 each to Camden, McNeil, and Warren.

[4] The following additional consignments were made to California points: 1 car each to Bakersfield, Berkeley, Burns, Chico, Escondido, Lodi, Long Beach, Princeton, Redding, San Bernardino, San Luis, and Santa Monica; 2 each to Hinkley, Modesto, Pasadena, Santa Barbara, and Seaside; 3 cars to Colton.


Carlots
16,000
15,500
15,000
14,500
14,000
13,500
13,000
12,500
12,000
11,500
11,000
10,500
10,000
9,500
9,000
8,500
8,000
7,500
7,000
6,500
6,000
5,500
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
LEGEND
Total U. S. 1916 - 17
Total U. S. 1917 - 18
Total U. S. 1918 - 19
Total U. S. 1919 - 20
Northwest 1916 - 17
Northwest 1917 - 18
Northwest 1918 - 19
Northwest 1919 - 20
1
16
1
July
April
May
June



21394°—21. (To face page 20.)

EXHIBIT No. 7.—Rate of carlot movement of apples, United States and Pacific Northwest 1916–1917 to 1919–1920.

EXHIBIT No. 8.—Primary distribution of carlot shipments from the Pacific Northwest.

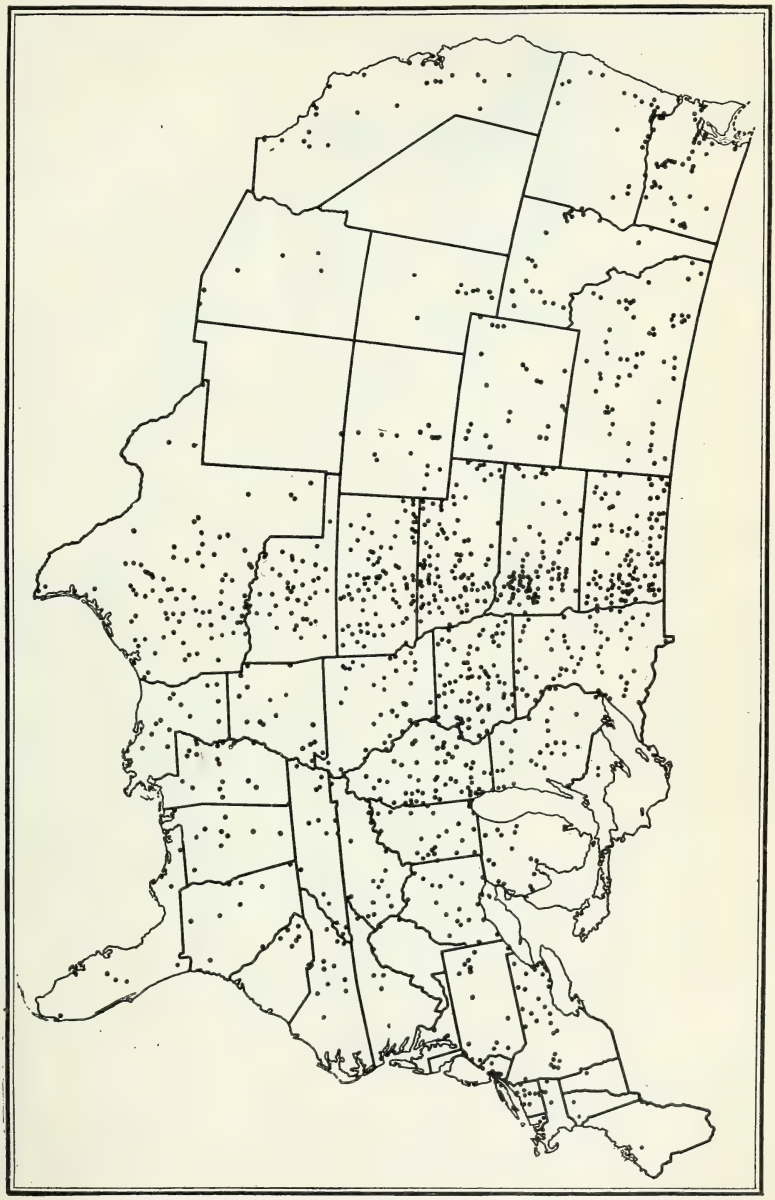
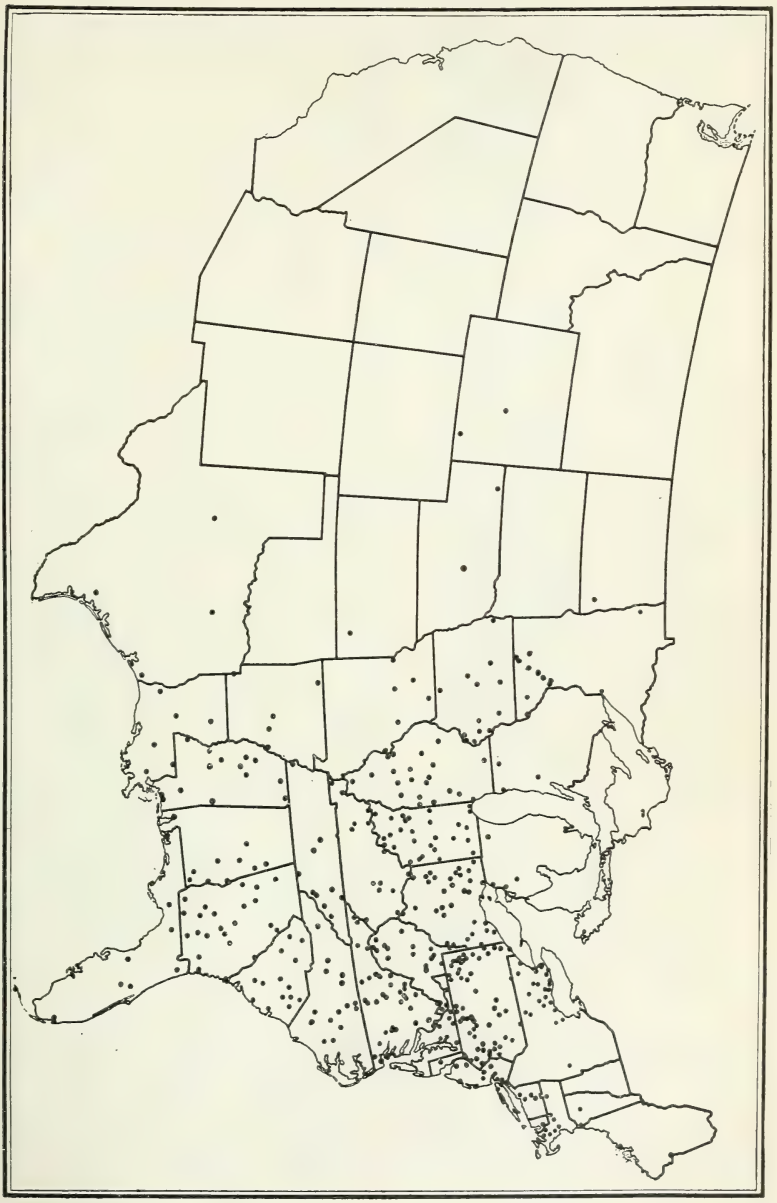


EXHIBIT No. 8 (Continued).—Primary distribution of carlot shipments from New York State.

EXHIBIT No. 8 (Continued).—Primary distribution of carlot shipments from the Central Appalachian district.



California—Continued.	
Pomona	5
Portola	13
Sacramento	25
San Diego	16
San Francisco	222
San Jose	13
Stockton	13
Watsonville	30
Colorado:[5]	
Colorado Springs	4
Denver	1,292
Pueblo	13
Trinidad	26
Connecticut:[6]	
Bridgeport	17
Hartford	28
New Haven	15
Waterbury	4
Delaware.[7]	
District of Columbia:	
Washington	82
Florida:[8]	
Jacksonville	38
Key West	9
Pensacola	14
Tampa	27
Georgia:[9]	
Atlanta	90
Augusta	21
Columbus	4
Macon	7
Idaho:[10]	
Boise	5
Loraine	6
Montpelier	4
Moscow	11
Nampa	9
New Plymouth	13
Payette	163
Pocatello	75
St. Anthony	5
Illinois:[11]	
Aurora	5
Bloomington	24
Bridgeport	11
Cairo	15
Chicago	4,254
Decatur	9
Joliet	8
Monmouth	4
Neoga	16
Oak Park	13
Oliver	4
Ottawa	10
Peoria	24
Rockford	11
Springfield	12
Streator	4
Valley	23
Indiana:[12]	
Evansville	16
Fort Wayne	9
Indianapolis	169
Miller	4
Milton	4
South Bend	4
Terre Haute	4
Vincennes	88
Iowa:[13]	
Burlington	15
Cedar Rapids	28
Clinton	21
Correctionville	4
Council Bluffs	10
Davenport	18
Des Moines	90
Dubuque	10
Fort Dodge	20
Fruitland	12
Harvey	9
Malvern	22
Marshalltown	32
Mason City	10

[5] The following additional consignments were made to Colorado points: 1 car each to Agate, Akron, Boulder, Cheraw, Greeley, La Salle, Otis, and Simon; 2 each to Eaton, Rocky Ford, Sterling, and Wray.

[6] The following additional consignments were made to Connecticut points: 1 car each to Danbury and New Britain; 2 each to Meriden, New London, and Norwich.

[7] The following consignment was made to Delaware: 1 car to Wilmington.

[8] The following additional consignments were made to Florida points: 1 car each to Baynard, Blackman, Carolina, Leonard, and Torrey; 2 cars to Miami.

[9] The following additional consignments were made to Georgia points: 1 car each to Kramer and Mount Pleasant; 2 each to Harris, New England, and Valdosta.

[10] The following additional consignments were made to Idaho points: 1 car each to American Falls, Buckingham, Burke, Glenns Ferry, Idaho Grove, Malad City, Minidoka, Moss, Rexburg, and Wallace; 2 each to Blackfoot, Burley, Idaho Falls, Kooskia, Meridian, and Rupert; 3 cars to Goodrich.

[11] The following additional consignments were made to Illinois points: 1 car each to Amboy, Arthur, Avon, Benton, Blandinsville, Cissna Park, De Kalb, Duquoin, Franklin Grove, Freeport, Galesburg, Grayville, Jefferson Park, Kansas, Martinsville, Mattoon, Northfield, Oneida, Orion, Pontiac, Princeville, Proctor, Quincy, Richardson, Rock Island, Roscoe, Simons, Velma, Warrington, Waukegan, and Worden; 2 each to Ashley, Champaign, Danville, Kewanee, Litchfield, Murphysboro, Normal, Oregon, Paxton, and Wheaton; 3 each to Centralia and New Salem.

[12] The following additional consignments were made to Indiana points: 1 car each to Anderson, Gessie, Knox, Kokomo, Michigan City, Muncie, Steubenville, and Whiting; 2 each to Rushville, Union City, and Warsaw; 3 each to Elwood, Evanston, Logansport, Newcastle and Williamsport.

[13] The following additional consignments were made to Iowa points: 1 car each to Ames, Atlantic, Bagley, Belmond, Bernard, Carroll, Clarion, Cresco, Croton, Decorah, Drum, Dumont, Eagle Grove, Fort Atkinson, Garner, Herrold, Jefferson, Kalona, Lacona, Manchester, Manly, Melrose, Miles City, Paullina, Reinbeck, Rock Valley, Sac City, Shenandoah, Sumner, Sutherland, Tama, Trask, Tripoli, Valvern, Van Wert, and Williams; 2 each to Algona, Ashton, Chariton, Lisbon, Macedonia, Rock Rapids, Tiffin, West Liberty, and Westside; 3 each to Beaver, Creston, Dixon, Grinnell, Hampton, Kingsley, Raymond, Sheldon, and Spencer.

Iowa—Continued.	
Ontario	8
Ottumwa	13
Sioux City	129
Waterloo	23
Kansas: [14]	
Arkansas City	4
Bird City	4
Coffeyville	6
Concordia	4
Ellsworth	4
Geneseo	4
Hays	9
Hutchinson	7
Independence	6
Marion	6
Melvern	17
Newton	9
Parsons	10
Topeka	33
Wichita	51
Winfield	21
Yates Center	6
Kentucky: [15]	
Lexington	20
Louisville	82
Louisiana: [16]	
Alexandria	18
Baton Rouge	4
Mansfield	4
Monroe	5
Maine: [17]	
Bangor	7
Portland	169
Maryland: [18]	
Baltimore	260
Massachusetts: [19]	
Boston	247
Holyoke	6
New Bedford	9
Springfield	22
Worcester	8
Michigan: [20]	
Champion	6
Detroit	194
Grand Rapids	9
Greenwood	7
Saginaw	4
Minnesota: [21]	
Albert Lea	13
Butler	4
Crookston	16
Duluth	176
Effie	5
Fairmont	5
Le Roy	321
Minneapolis	4,058
Minnesota Transfer	60
Mitchell	12
Moorhead	6
Pipestone	5
St. Cloud	7
St. Paul	329
Thief River Falls	18
Tracy	10
Virginia	7
Wadena	4
Willmar	5
Mississippi: [22]	
Jackson	19
Meridian	53
Vicksburg	6

[14] The following additional consignments were made to Kansas points: 1 car each to Abilene, Almena, Atchison, Bancroft, Beardsley, Bedford, Belmont, Beloit, Benedict, Bentley, Bubbock, Bucklin, Carlton, Chanute, Clyde, Colby, Courtland, Eldorado, Ellinwood, Englevale, Garfield, Grinnell, Hamburg, Haven, Helca, Herndon, Holton, Iola, Jetmore, Little River, Lorraine, Lucas, Ludell, Lyons, McPherson, Manchester, Manhattan, Marysville, Meade, Norcatur, Ogdensburg, Rushcenter, St. John, Summerfield, Traer, Wakeeney, Washington, Wellington, Wheeler, and Wilmore; 2 each to Baxter, Bremen, Eureka, Fort Scott, Garden City, Jennings, Junction City, Kellogg, Mankato, Mitchell, Norton, and Oberlin; 3 each to Dodge City, Emporia, Goodland, Great Bend, Harper, Ottawa, and Salina.

[15] The following additional consignments were made to Kentucky points: 1 car each to Bowling Green, Henderson, Johnsonville, Montague, Paducah, Sharon Springs, Silver Creek, Soldier, and Wolf Pit; 2 each to Owensboro and Pineville; 3 each to Boone, Frankfort, Fremont, Marshall, and Middlesboro.

[16] The following additional consignments were made to Louisiana points: 1 car each to Crowley, Fullerton, Gibsland, Hazel, Lewisville, Maurice, and Morgan City; 2 each to Fayette and Lucas; 3 cars to Shreveport.

[17] The following additional consignments were made to Maine points: 1 car each to Auburn and Merden.

[18] The following additional consignment was made to Maryland: 2 cars to Locust Point.

[19] The following additional consignments were made to Massachusetts points: 1 car each to Fall River, Pittsfield, and Watuppa.

[20] The following additional consignments were made to Michigan points: 1 car each to Croswell, Harnsville, Lake Linden, Lansing, Lowell, Morenci, Roseburg, Sault Ste. Marie, Sturgis, Trimountain, and Wyandotte; 2 each to Adrian, Battle Creek, Bay City, Hancock, and Wellsford; 3 each to Kalamazoo and Menominee.

[21] The following additional consignments were made to Minnesota points: 1 car each to Aitkin, Battle Lake, Bovey, Breckinridge, Clara City, Clearbrook, Collegeville, Dover, Eden Valley, Elk River, Faribault, Fertile, Harlis, Hendrum, International Falls, Kasson, Kenneth, Marshall, Minneota, Montevideo, Motley, Nashua, Redwood, Richville, Robbinsdale, Sauk Rapids, Washington, Wayzata, and Winton; 2 each to Argyle, Bemidji, Brainerd, Fergus Falls, Langdon, Lismore, Mahnomen, Proctor, Red Wing, and Worthington; 3 each to Chisholm, Ortonville, and Winona.

[22] The following additional consignments were made to Mississippi points: 1 car each to Brookhaven, Fernwood, Foster, Hampton, Hanford, Hattiesburg, Ingomar, Lockhart, McComb, Maben, Malvina, Natchez, Rankin, Richey, and Union; 2 cars to Prairie.

Missouri: [23]	
Carthage	4
Columbia	34
Hannibal	41
Jefferson City	8
Joplin	14
Kansas City	583
St. Joseph	47
St. Louis	306
Montana: [24]	
Anaconda	12
Billings	143
Bozeman	13
Butte	188
Chinook	7
Cut Bank	56
Deer Lodge	6
Farrell	16
Forsyth	4
Glasgow	5
Glendive	4
Great Falls	69
Harlowton	6
Havre	26
Helena	32
Howard	4
Laurel	107
Lewistown	19
Livingston	6
Malta	4
Manchester	5
Miles City	26
Missoula	46
Red Lodge	7
Roundup	14
Shelby	5
Stanford	6
Terry	5
Whitefish	70
Wolf Point	4
Nebraska: [25]	
Alliance	8
Beatrice	7
Crawford	8
Nebraska—Continued.	
Grand Island	477
Harvard	4
Hastings	12
Holdrege	4
Kearney	13
Lincoln	157
Norfolk	15
North Platte	450
Omaha	700
Scottsbluff	10
New Hampshire.[26]	
New Jersey: [27]	
Jersey City	52
Newark	10
Passaic	5
Phillipsburg	6
Trenton	4
New Mexico.[28]	
New York: [29]	
Albany	13
Auburn	11
Ballston Spa	4
Barker	15
Binghamton	4
Brooklyn	5
Buffalo	47
Burt	25
Cornell	5
Dover Plains	15
Elmira	148
Geneva	21
Hilton	37
Hornell	37
Jamestown	32
Lockport	70
Medina	13
New York City	2,401
Niagara Falls	7
Port Richmond	5
Rochester	22
Schenectady	7
Suspension Bridge	98

[23] The following additional consignments were made to Missouri points: 1 car each to Belle, Charles, Clarksdale, Desloge, Fenwick, Flint, Glenwood, Holmes, Louisiana, McDonald, Malden, Matson, Minden, Moberly, Napoleon, Nevada, Plattsburg, Schuyler, Sedalia, Sikeston, Wheeling, and Wright City; 2 cars to Beaver; 3 cars each to Mexico, Springfield, and Winston.

[24] The following additional consignments were made to Montana points: 1 car each to Armstead, Basin, Browning, Chappell, Delphia, Dillon, Garrison, Grassrange, Hingham, Ismay, Judith Gap, Kintyre, Libby, Plentywood, Poplar, Stockett, Valier, Warmsprings, Wennett, and Windham; 2 each to Bigtimber, Conrad, Custer, Eveleth, Medicine Lake, Redstone, Rexford, and Virden; 3 cars each to Big Sandy and Finch.

[25] The following additional consignments were made to Nebraska points: 1 car each to Albion, Ashton, Beaver Crossing, Belgrade, Benkelman, Vereville, Bigsprings, Gladen, Bloomfield, Broken Arrow, Bushnell, Central City, Chadron, Chappell, Cobb, Columbus, Cortland, Cowles, Creighton, Crookston, Curtis, Dannebrog, Deshler, Dorchester, Elsie, Elyria, Fairfield, Fullerton, Germantown, Grafton, Grant, Haigler, Havelock, Hazard, Hebron, Hemingford, Holstein, Hooper, Imperial, Inavale, Lewellen, Long Pine, Loretto, Madison, McCook, Merna, Minden, Moorefield, Newman Grove, Ogallala, Ong, Osmond, Scribner, Shickley, Sterling, Upland, Valley, Venango, Wakefield, Wisner, and York; 2 each to Broken Bow, Cozad, Crete, Culbertson, David City, Dawson, Eustis, Farnam, Loup City, Mitchell, Morrill, Oxford, Sheldon, and Wymore; 3 each to Chester, Emmett, Fairbury, Gothenburg, O'Neill, and Wahoo.

[26] The following consignments were made to New Hampshire points: 1 car each to Keene and Manchester.

[27] The following additional consignments were made to New Jersey points: 1 car each to New Brunswick and Plainfield; 2 cars to Elizabeth; 3 cars to Bayonne.

[28] The following consignment was made to New Mexico: 1 car to Raton.

[29] The following additional consignments were made to New York points: 1 car each to Amsterdam, Colden, and Ithaca; 2 cars each to Canastota, Jamaica, Melrose, Rockport, and Rome; 3 cars to Wellsville.

New York—Continued.	
Syracuse	26
Troy	7
Utica	10
Wilson	14
North Carolina: [30]	
Asheville	18
Charlotte	14
Fayetteville	4
Gastonia	4
North Dakota: [31]	
Beach	23
Bismarck	86
Cogswell	4
Cooperstown	5
Dickinson	10
Fargo	76
Grafton	14
Leeds	8
Mandan	15
Marmath	10
Minot	308
New Rockford	10
Oakes	6
Ransomeville	9
Rossville	17
Rugby	5
Stanley	6
Towner	4
Valley City	59
Wahpeton	6
Williston	13
Ohio: [32]	
Akron	106
Ashtabula	4
Bellefontaine	4
Canton	22
Cincinnati	124
Cleveland	194
Columbus	77
Dayton	17
Ohio—Continued.	
Lima	4
Toledo	60
Youngstown	10
Zanesville	5
Oklahoma: [33]	
Ardmore	8
Enid	6
McAlester	10
Muskogee	27
Oklahoma	132
Shawnee	14
Tulsa	110
Oregon: [34]	
Baker	7
Bend	4
Cornelius	5
East Portland	12
Five Points	4
Hood River	72
Medford	4
Newberg	8
Portland	165
Salem	7
The Dalles	140
Pennsylvania: [35]	
Altoona	9
Beaver Falls	4
Everson	5
Hazelton	4
Lehighton	8
Philadelphia	471
Pittsburgh	630
Scranton	22
Rhode Island: [36]	
Providence	55
South Carolina: [37]	
Anderson	8
Charleston	12
Greenville	18
Spartanburg	33

[30] The following additional consignments were made to North Carolina points: 1 car each to Linville, Rockingham, and Vilas; 2 each to Greensboro and Statesville; 3 each to Albemarle and Winston-Salem.

[31] The following additional consignments were made to North Dakota points: 1 car each to Bathgate, Berthold, Binford, Brantford, Brocket, Calvin, Carbury, Carrington, Casselton, Chaffee, Colgan, Curlew, Dazey, Deering, Drayton, Eckelson, Edinburg, Egeland, Enderlin, Epping, Fessenden, Finley, Flasher, Forestburg, Friend, Glen Ullin, Hankinson, Jamestown, Kelso, Kindred, Lakota, La Moure, Landa, Lidgerwood, Linton, Lisbon, McVille, Mantador, Mayville, Michigan, Nekoma, Noonan, Northwood, Oriska, Park River, Perth, Portland, Powers Lake, Reeder, Regent, Rock Lake, Sarles, Selfridge, Sherwood, Starkweather, Stirum, Strasburg, Streeter, Tolley, Tower City, Turtle Lake, and Warwick; 2 each to Alta, Cando, Dogden, Fullerton, Goldenvalley, Hatton, Inkster, Johnstown, Kensal, Lansford, Luverne, McClusky, Mott, Page, Sharon, and Sykeston; 3 each to Grand Forks, Hettinger, Hillsboro, Maddock, and Max.

[32] The following additional consignments were made to Ohio points: 1 car each to Findlay, Lando, and Wooster; 2 each to Lorain, Portsmouth, and West Lafayette; 3 each to Massillon and Springfield.

[33] The following additional consignments were made to Oklahoma points: 1 car each to Ada, Beulah, Bison, Blackstone, Blackwell, Booneville, Canute, Chandler, Crane, Custer City, Durant, Elk City, Fairview, Frederick, Grainville, Guthrie, Hobart, Hollister, Kiefer, Miami, Moore, Morris, Mounds, Okemah, Okmulgee, Pauls Valley, Stillwater, Tuttle, Tyrone, and Woodward; 2 each to Calumet, Cherokee, Chickasha, Dickson, Lawton, Perry, and Vinita; 3 cars to Cushing.

[34] The following additional consignments were made to Oregon points: 1 car each to Albina, Altus, Ashland, Bertha, Brandt, Corvallis, Eugene, Graham, Hermiston, Klamath Falls, Moro, Roseburg, and Yamhill; 2 each to Houlton and Nyassa; 3 each to La Grande and Pendleton.

[35] The following additional consignments were made to Pennsylvania points: 1 car each to Arnot, New Britain, and New Kensington; 2 each to Arnold and Erie; 3 each to Homestead and Lancaster.

[36] The following additional consignment was made to Rhode Island: 1 car to Woonsocket.

[37] The following additional consignments were made to South Carolina points: 1 car each to Greenwood and White Stone; 2 each to Charlotte, Rock Hill, and Union.

South Dakota:[38]	
Aberdeen	131
Artesian	4
Brookings	4
Deadwood	14
Devils Lake	6
Drake	12
Huron	6
Madison	6
Mobridge	11
Parker	5
Pierre	6
Plankington	5
Rapid City	16
Sioux Falls	39
Watertown	24
Tennessee:[39]	
Bristol	8
Chattanooga	23
Johnson City	4
Knoxville	11
Memphis	63
Nashville	29
Texas:[40]	
Abilene	8
Amarillo	4
Austin	22
Beaumont	17
Brenham	4
Cameron	4
Cisco	6
Corsicana	4
Dallas	179
El Paso	21
Fort Worth	121
Galveston	18
Greenville	13
Houston	138
Laredo	28
Marshall	5
Paris	24
Texas—Continued.	
Richland	4
St. Francis	4
San Angelo	10
San Antonio	64
San Benito	4
San Marcos	5
Sherman	8
Taylor	4
Tyler	33
Waco	113
Wichita Falls	16
Yoakum	5
Utah:[41]	
Salt Lake City	18
Vermont.[42]	
Virginia:[43]	
Lynchburg	9
Norfolk	47
Richmond	12
Roanoke	7
Washington:[44]	
Bellinger	15
Everett	55
Grand View	10
Kennewick	7
Kent	23
Mabton	5
North Puyallup	14
Olympia	117
Pasco	12
Puyallup	7
Seattle	569
Selah	16
Spokane	274
Sumner	153
Tacoma	102
Toppenish	5
Umatilla	14
Vancouver	119
Walla Walla	46

[38] The following additional consignments were made to South Dakota points: 1 car each to Bath, Bellefourche, Blunt, Brentford, Burke, Corsica, Delmont, Doland, Edgemont, Erskine, Ethan, Faith, Fedora, Freeman, Fulton, Groton, Hartley, Herried, Holmquist, Hoven, Howard, Hurdsfield, Hurley, Isabel, Kimball, Lake Preston, Lesterville, Mellette, Menno, Missinhill, Mount Vernon, Murdo, Oldham, Oneka, Ree Heights, Ruby, Savoy, Scotland, Selby, Sinai, Stickney, Tulare, Veblen, Viborg, Vilas, and Winner; 2 each to Alexandria, Arlington, Bridgewater, Canova, Chamberlain, Conde, Garretson, Highmore, Lead, Letcher, Parkston, Redfield, Rockham, Tripp, Volga, Webster, White Lake, and Wolsey; 3 each to Clark, Morristown, Vermilion, and Wessington.

[39] The following additional consignments were made to Tennessee points: 1 car each to Centerville, Glen Ellen, Humboldt, Norris, and Trenton; 2 each to Barnesville and Katherine; 3 cars to Dyersburg.

[40] The following additional consignments were made to Texas points: 1 car each to Allendale, Alpine, Alvin, Ballinger, Boden, Bonham, Brownsville, Burnside, Clear Creek, Coleman, Corpus Christi, Cuero, Easterly, Eastland, El Campo, Gainesville, George, Giddings, Goodwin, Hardin, Herrington, Hartley, Hasse, Hershey, Hunter, Huntsville, Jordan, Lacy, Lester, Lufkin, Manning, Mason, Mexico, Mineola, Nebraska, New Braunfels, Pescos, Pleasanton, Pullian, Somerset, Stamford, Sulphur Springs, Sylvan Grove, Terrell, Timber, and Uvalde; 2 each to Athens, Bay City, Bryan, Flatonia, Granger, Llano, McKinney, Mineral Wells, Nacogdoches, Palestine, Paradise, Seymour, Temple, Weatherford, and Yorktown; 3 each to Brownwood, Eagle Pass, Lubbock, and Port Arthur.

[41] The following additional consignments were made to Utah points: 1 car each to Bingham, Greenriver, Hyde Park, Layton, Lehi, Petersboro, and Stoddard; 2 cars to Roy; 3 cars to Richfield.

[42] The following consignment was made to Vermont: 2 cars to Rutland.

[43] The following additional consignments were made to Virginia points: 1 car to Appalachia; 2 cars to Newport News; 3 cars to Lemon.

[44] The following additional consignments were made to Washington points: 1 car each to Almira, Argo, Borup, Cascade, Cashmere, Cle Elum, Dryden, Edgeley, Eltopia, Fort Wright, Hillyard, Index, Knapp, Lemona, Malden, Malone, Ravenna Park, Republic, Rochester, and Wells; 2 each to East Farm, Ellensburg, Hoquiam, Lind, Ritzville, Sandy Point, and Wenatchee; 3 cars each to Aberdeen and Centralia.

Washington—Continued.	
Wallula	7
Wapato	17
Yakima	448
Zillah	115
West Virginia.[45]	
Wisconsin:[46]	
Appleton	5
Eau Claire	11
Janesville	5
La Crosse	17
Madison	10
Marshfield	8
Milwaukee	124
Oshkosh	7
Richland Center	4
Stevens Point	6
Superior	10
Wausau	4
Wyoming:[47]	
Casper	23
Cheyenne	297
Crosby	5
Gillette	4
Kemmerer	4
Laramie	79
Rawlins	4
Riverton	4
Rock Springs	4
Sheridan	13
Thermopolis	4

CANADA.

Alberta:[48]	
Calgary	20
Edmonton	17
Lethbridge	4
British Columbia:[49]	
Cut Bank	16
Grand Forks	18
Vancouver	25
Manitoba:[50]	
Brandon	4
Winnipeg	36
New Brunswick:[51]	
St. John	4
Nova Scotia:[52]	
Ontario:[53]	
Hamilton	5
Kingston	4
Toronto	52
Quebec:	
Montreal	22
Quebec	4
Saskatchewan:[54]	
Moose Jaw	12
Prince Albert	4
Regina	26
Saskatoon	12
Weyburn	14

WEST INDIES.

Cuba:	
Havana	17

[45] The following consignments were made to West Virginia points: 2 cars each to Huntington and Litchen; 3 cars to Bluefield.

[46] The following additional consignments were made to Wisconsin points: 1 car each to Antigo, Blanchardville, Cody, Kenosha, Merrill, Oneida, Prescott, Rosholt, South Range, and Wild Rose; 2 each to Green Bay, Jefferson, Rhinelander, Ripon, River Falls, Sydney, and Winter; 3 each to Beloit, Racine, and Washburn.

[47] The following additional consignments were made to Wyoming points: 1 car each to Diamondville, Dietz, Evanston, Frontier Park, Glenrock, Hereford, Lingle, Moorcroft, Ruck, and Wheatland; 2 each to Lander, Powell, and Upton.

[48] The following additional consignments were made to Alberta points: 1 car each to Big Stone, Clairmont, Fitzgerald, Killam, and Redcliff; 2 cars to Pocahontas; 3 cars to Medicine Hat.

[49] The following additional consignments were made to British Columbia points: 1 car each to Fernie, Hulatt, Huntingdon, Seton, and Three Forks; 2 cars to Milner; 3 each to Sidney and Victoria.

[50] The following additional consignments were made to Manitoba points: 1 car to Leighton; 2 cars to Melita; 3 cars to Elm Creek.

[51] The following additional consignments were made to New Brunswick points: 1 car to Humphreys; 3 cars to Salisbury.

[52] The following consignment was made to Nova Scotia: 1 car to Tomkinsville.

[53] The following additional consignments were made to Ontario points: 1 car each to Aberdeen, Dublin, Millbank, North Bay, Port Arthur, Prince Albert, Redmond, Rockland, St. Thomas, Sudbury, and Welland; 2 each to Bainsville, Chippewa Falls, Hillsbury, and Omemee; 3 cars to London.

[54] The following additional consignments were made to Saskatchewan points: 1 car each to Alameda, Canora, Carnduff, Chaplin, Fernwood, Kerr-Robert, and Rutan; 3 cars to Swift Current.

EXHIBIT No. 10.

Comparison of apple exports by months.

Months.	1916–17	1917–18	1918–19	1919–20
	Barrels.	*Barrels.*	*Barrels.*	*Barrels.*
September	129,503	24,720	14,942	34,619
October	346,014	68,985	90,780	115,715
November	378,320	150,644	104,572	213,270
December	342,572	190,390	160,035	142,806
January	203,904	33,776	213,107	161,157
February	130,666	26,232	493,996	90,215
Total	1,530,979	494,747	1,077,432	757,782

EXHIBIT No. 11.

To make a comparison of the rate and destination competition among the three main apple-producing sections of the United States, the mileage and freight rate from Spokane, Wash., Rochester, N. Y., and Winchester, Va., are shown from those points to nine of the principal terminal markets of the country. These rates were in effect on March 31, 1920, but are given merely as a matter of information and can have no standing in adjusting freight charges with carriers. For that purpose official quotations from tariffs on file with the Interstate Commerce Commission and with State commissions should be secured from carriers' representatives.

To—	Spokane, Wash.		Rochester, N. Y.		Winchester, Va.	
	Distance (miles).	Rate per 100 pounds.	Distance (miles).	Rate per 100 pounds.	Distance (miles).	Rate per 100 pounds.
Chicago, Ill	1,835	$1.25	605	$0.31	770	$0.42
Detroit, Mich	2,118	1.25	322	.24½	612	.32
Indianapolis, Ind	2,019	1.25	536	.29½	664	.39
Cincinnati, Ohio	2,120	1.25	514	.27½	553	.36
Pittsburgh, Pa	2,303	1.25	286	.21½	302	.24
Buffalo, N. Y	2,371	1.25	69	.11½	435	.27
Philadelphia, Pa	2,652	1.25	369	.22½	223	.25
New York, N. Y	2,744	1.25	370	.22½	315	.27
Boston, Mass	2,868	1.25	428	.25	548	.29½

The refrigeration charge on apples per car prior to March 1, 1920, from Spokane to these points was as follows: Chicago, $60; Detroit, Indianapolis, Cincinnati, Pittsburgh, and Buffalo, $65; Philadelphia and New York, $70; Boston, $75.

The tariffs named a heating charge from Spokane to Chicago only, and this rate, prior to March 1, 1920, was $27.

The refrigeration charges on shipments originating in the East vary, depending on the individual tariffs of the carriers.

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